

ABSTRACT

The present invention provides a method for controlling crown gall disease in plants using an effective quantity of α -proteobacteria that produces trifoliotoxin (TFX). The present invention also provides a biocontrol agent for use in the above method, and a plant coated with the biological control agent. The biocontrol agent is characterized as a biologically pure culture of an α -proteobacteria strain that produces TFX, or an α -proteobacteria strain genetically engineered to produce TFX. The α -proteobacteria strain employed may include any one of the many strains of *Agrobacterium* capable of producing crown galls, including *Agrobacterium vitis* and, in particular, *A. vitis* F2/5. The α -proteobacteria strain employed may be genetically engineered to produce TFX by introducing a genetic construct into the *Agrobacterium* so as to cause the *Agrobacterium* to carry and express the *tfx* operon from *Rhizobium*. The bacteria may also be genetically engineered to produce TFX by introducing a pT2TFXK plasmid into the *Agrobacterium*. The biocontrol agent may also be the strain *Agrobacterium vitis* F2/5 (pT2TFXK), ATCC Patent Deposit Designation PTA-2356.